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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/824,576

04/15/2004

Norifumi Shukunami

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EXAMINER

HUGHES, DEANDRA M

ART UNIT

PAPER NUMBER

3663

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/824,576

Applicant(s)

SHUKUNAMI ET AL.

Examiner

Deandra M. Hughes

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-9 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 and 13-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 8-9, 12, 16-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 8-9, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Gerrish (US 2001/0040720 published Nov. 15, 2001).

With regard to claims 1, 9, Gerrish discloses an optical amplifier comprising:

- an input power detecting unit (fig. 1A, #32) *that detects an input power of an optical signal;*
- an output power detecting unit (#34) *that detects an output power of the optical signal;*
- a control unit (#100) *that calculates a factor (e.g.,  $G_{sp}$  of fig. 1B) that depends upon the input power ( $P_{in}(k)$ ) and causes a gain of the optical amplifying unit to change and controls the optical amplifying unit to keep the gain constant based on the output power and a result of addition of the input power and the factor (paragraph [0019] and the subsequent algorithm).*

The Examiner considers the claim language identified in italics above to be a functional limitation, i.e. intended use. While features of an apparatus may be recited structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. Since the structural limitations have been met by the prior art, the functional limitations can be performed by

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the prior art structure merely by programming the control unit (#100) to optimize the gain based on the claimed algorithm. See MPEP 2114.

With regard to claim 8, the control unit controls the power of the excitation laser diode (#22; paragraph [0024]).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gerrish.

Gerrish discloses gain control based on input power and temperature. (paragraph [0019]). Or if it is held that the Gerrish does not specifically disclose that said factor is the temperature, it is well-known that an fluctuation in power results in a corresponding temperature change. In paragraph [0019], Gerrish discloses that "control calculations...of problematic conditions such as,...high temperature, low temperature" are processed in the control algorithm. Increased input power is an increase in the number of photons entering the fiber. Photons are bundles of light energy. Heat is energy. Therefore, an increased number of photons results in increased temperature and vice versa. Consequently, It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to conclude that a

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factor of input power would be temperature for the advantage of providing an accurate control algorithm.

5. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerrish in view of Suzuki (US 6,335,821 published Jan. 1, 2002)

Gerrish discloses:

- a power detecting unit (fig. 1A #15) that detects the input power of the input optical signal (#32) and the output power (#34) of the output optical signal and produces a corresponding detection output based on both thereof (input into #46);
- detecting an operating temperature of the amplifier (paragraph [0020] discloses temperature of the amplifier);
  - o a change in the operating temperature causing the gain of the optical amplifier to change to maintain the gain of the optical amplifier at a predetermined value (this is inherent; changes in temperature affect the gain of the amplifier; see also [0020]);

Gerrish does not specifically disclose a temperature-detecting unit detecting the temperature of an EDF and producing a corresponding temperature detection output. However, Gerrish discloses detecting an operating temperature of the optical amplifier. Further, Suzuki teaches a temperature detector detecting the temperature of an EDF and producing a corresponding output (#9). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use the

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temperature detector to detect the operating temperature of an EDF for the advantage of producing a flat amplifier gain.

Gerrish does not specifically disclose that the control unit calculates a power of the ASE based on the power and the temperature detection outputs. However, Suzuki teaches, as it is well known in the art, the ASE is a function of power and temperature (figs. 37-39). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to calculate the ASE based on input power and temperature because ASE is a function of these two parameters.

Apparatus claim 17 contains only the following positive structural limitations: a power detecting unit, a temperature detecting unit, and a control unit. All the other language in the claims are method limitations. Method limitations do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

***Response to Arguments***

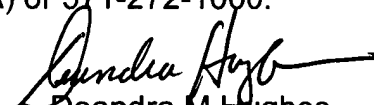
6. Applicant's arguments with respect to claims 1, 4, 8-9, 12, and 16-18 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Deandra M Hughes  
Primary Examiner  
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